United States Department of Agriculture

Soil Conservation Service

Program Aid Number 1438

'Marshfield' big trefoil

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'Marshfield' is a semierect big trefoil that was introduced into the United States from New Zealand in 1919. After demonstrating superior growth and persistence for many years compared with other big trefoils, Marshfield was released cooperatively in 1971 by the Oregon Agricultural Experiment Station, the Washington Agricultural Research Center, and the Soil Conservation Service (SCS) of the United States Department of Agriculture (USDA). Testing before 1963 was conducted by the Plant Science Research Division, USDA-Agricultural Research Service, Corvallis, Oregon.

Description

Marshfield big trefoil is uniform in appearance and growth habit and reaches a height of about 2 feet in full sun. In addition to being relatively free of pubescence, it has distinctive reddish stems and varying degrees of red coloration on the leaflets. Like other big trefoils, Marshfield fixes nitrogen, spreads by rhizomes and runners, and is shallow rooted. Under favorable conditions, numerous long pink rhizomes form under the soil surface and stolons extend beneath adjacent vegetation. The rhizomes and stolons enable Marshfield to spread aggressively.

Compared with other big trefoils, Marshfield is intermediate in time of seed maturity. In addition, it is a heavy seed producer and is quite resistant to seed-shattering loss. The seeds, which are olive green, number approximately 1 million per pound.

Marshfield big trefoil resembles birdsfoot trefoil, but it produces 8 to 16 flowers per cluster versus 4 to 8 flowers per cluster for birdsfoot trefoil. In overall color, this cultivar exhibits varying degrees of red coloration on its stems and foliage.

Adaptation

Marshfield big trefoil is well adapted to the poorly drained, strongly acid soils of the humid coastal valleys of Oregon, Washington, and northern California, where mature plants can survive frequent flooding during the winter months. Marshfield is also tolerant of brackish overflow and flourishes on upland sites, particularly in the Coast Range, where annual precipitation averages 40 inches or more. In lower rainfall zones, it thrives only on sites with supplemental irrigation or on those sites that are subject to wet soil conditions of long duration. Marshfield is not considered hardy east of the Cascades. Its shade tolerance exceeds that of birdsfoot trefoil; however, it does best in the full sun.

Uses

As a pasture legume, Marshfield big trefoil does very well on poorly drained soils in association with meadow foxtail, timothy, or reed canarygrass. It also makes good-quality hay and silage. As wildlife forage, Marshfield is favored by deer and Roosevelt elk. Combined with meadow foxtail and managed for winter use, it is used by geese and widgeon.

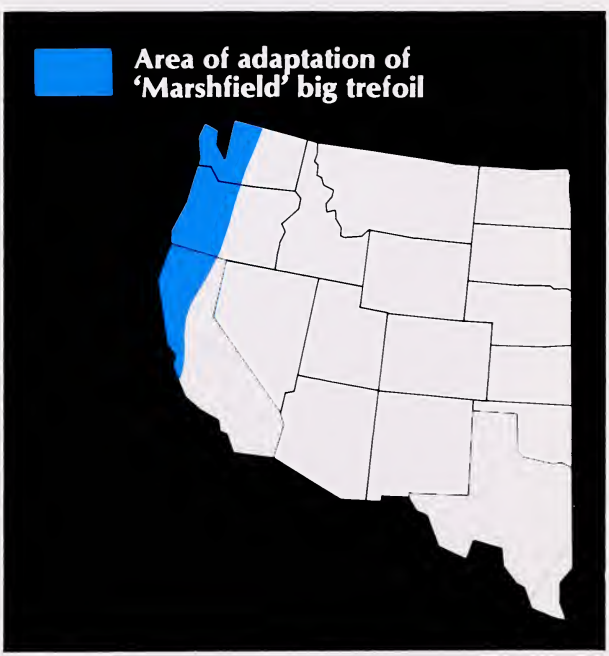
Though often slow to establish with densely seeded grasses, Marshfield big trefoil is highly suitable for erosion control and beautification on cut-over timberland, roadsides, streambanks, and other areas that are subject to soil loss. Marshfield can be used for seeding older sand dunes and deflation plains that have formed along the leeward side of coastal foredunes.

Culture and Management

For pastures, a fine, firm seedbed is essential for the successful establishment of Marshfield. Seeding depth should not exceed one-half of an inch. The recommended planting rate is 3 pounds per acre of pure

live seed, sown crosshatched or with alternating rows of a suitable grass. Phosphorus is needed in nearly all plantings. For high forage yields, Marshfield annually requires about 70 pounds per acre of phosphate. On some soils, potash is also needed. Care must be taken to avoid the excessive grass competition that results from a medium to heavy application of nitrogen. All seed should be treated with a species-specific inoculant immediately before planting.

Marshfield big trefoil is superior in grazing tolerance to 'Cascade' birdsfoot trefoil and nearly equal to 'Kalo' dwarf English trefoil. For maximum forage production and longevity in pastures, however, Marshfield should not be grazed closer than 4 inches. A rotational system with a 4-week recovery period should be used. Irrigation is essential for this plant to survive on sites where precipitation averages less than 40 inches annually.



Seed Production

Medium-textured, well-drained, irrigated soils are best for seed production. In areas similar to the Willamette Valley of western Oregon, seed yields exceeding 300 pounds per acre can be obtained on high-water-holding-capacity soils with a single heavy application of water in June. More frequent irrigation will be required on coarse-textured soils. A soil test is needed to determine the soil's fertility needs accurately. Phosphorus, potassium, and sulfur are the nutrients most likely to be lacking.

Availability

Marshfield big trefoil breeder and foundation seed is maintained cooperatively by the SCS Plant Materials Center and the Oregon State University Foundation Seed Project, Corvallis, Oregon. Commercial growers can obtain seed from the latter organization. Certified seed is available from commercial growers.

For more information on availability, propagation, and use of Marshfield, contact the Corvallis Plant Materials Center, 3420 NE Granger Avenue, Corvallis, OR 97330. Information is also available from your local SCS office, which is listed in the telephone directory under "United States Government, Department of Agriculture." All programs and services of the Soil Conservation Service are offered on a nondiscriminatory basis without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

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